

CLAIMS

1. A star wheel for a conveyor system, the star wheel comprising first and second segments each having a perimeter adapted to receive articles
5 to be conveyed, the segments being rotatable about a common axis at different speeds and means for controlling rotation of the segments so as to avoid clashing between one segment and the other segment or any articles conveyed thereby.
- 10 2. A star wheel according to Claim 1, wherein the control means comprises a first shaft for rotating the first segment about the common axis, a second shaft for rotating the second segment about the common axis, and means for resiliently connecting the first shaft to the second shaft.
- 15 3. A star wheel according to Claim 2, wherein the control means comprises means for connecting the first shaft to a first drive for rotating the first and second shafts about the common axis, and means for selectively connecting the second shaft to a second drive for
20 rotating the second shaft about the common axis at a different speed from the first shaft.
4. A star wheel according to Claim 3, wherein the control means comprises a clutch arrangement for selectively connecting the second
25 shaft to, and disconnecting the second shaft from, the second drive.
5. A star wheel according to Claim 4, wherein the clutch arrangement is arranged to connect the second shaft to the second drive upon deceleration of the first shaft.

6. A star wheel according to Claim 4 or Claim 5, wherein the clutch arrangement is arranged to connect the second shaft to the second drive when the second segment is at a first predetermined angular position.
- 5 7. A star wheel according to Claim 6, wherein, to prevent said clashing, the clutch arrangement is arranged to disconnect the second shaft from the second drive following rotation of the second segment to a second predetermined angular position relative to the first segment.
- 10 8. A star wheel according to Claim 7, wherein the resilient means is arranged to return the second segment from the second angular position to the first-mentioned angular position upon disconnection of the second shaft from the second drive.
- 15 9. A star wheel according to any of Claims 4 to 7, wherein the clutch arrangement comprises a solenoid clutch actuatable to selectively engage a disc rotated by the second drive.
- 20 10. A star wheel according to any of Claims 2 to 9, wherein the resilient means comprises a torsion spring connecting the first shaft to the second shaft.
- 25 11. A star wheel according to any preceding claim, wherein at least part of the first segment is axially spaced from the second segment along the common axis.
12. A star wheel according to any preceding claim, wherein the first and second segments are of different size.
- 30 13. A star wheel according to Claim 12, wherein, in plan view, the segments define an annular wheel.

14. A star wheel according to any preceding claim, wherein each segment has a plurality of article-engaging elements spaced about the periphery thereof.

15. A star wheel according to Claim 14, wherein each element comprises a recess for receiving an article to be conveyed.

16. A star wheel according to Claim 14 or Claim 15, wherein the segments have different numbers of said elements.

17. A star wheel for a conveyor system, the star wheel comprising first and second segments each having a perimeter adapted to receive articles to be conveyed, a first shaft for rotating the first segment about an axis, a second shaft for rotating the second segment about the axis, means for resiliently connecting the first shaft to the second shaft, means for connecting the first shaft to a first drive for rotating the first and second shafts together about the axis, and means for selectively connecting the second shaft to a second drive for rotating the second shaft about the axis at a different speed from the first shaft.

18. A star wheel according to Claim 1, wherein the control means comprises a first servo arrangement for selectively connecting the first segment to one of a first drive and a second drive to rotate the segment at a first speed, and a second servo arrangement for selectively connecting the second segment to the other of the first drive and the second drive to rotate the second segment at a second speed different from the first speed.

19. A star wheel according to Claim 18, wherein the first and second servo arrangements are arranged to synchronously change the drive to which the segments are connected to prevent said clashing.
- 5 20. A star wheel for a conveyor system, the star wheel comprising first and second segments rotatable about a common axis, each segment having a perimeter adapted to receive articles to be conveyed, a first servo arrangement for connecting the first segment to one of a first and a second drive, and a second servo arrangement for connecting the
10 second segment to the other of the first and second drive, wherein the first and second servo arrangements are arranged to synchronously change the drive to which each segment is connected.
- 15 21. Apparatus for conveying articles from a first station to a second station, the apparatus comprising a star wheel according to any preceding claim, a first conveyor for conveying articles from the first station to the star wheel, a first drive for driving the first conveyor, a second conveyor for conveying articles from the star wheel to the second station, and a second drive for driving the second conveyor.
- 20 22. Apparatus according to Claim 21, wherein the first and second drives are arranged to drive the conveyors at the same speed.
- 25 23. Apparatus according to Claim 21, wherein the first and second drives are arranged to drive the conveyors at different speeds.
- 30 24. Apparatus according to any of Claims 21 to 23, comprising a second star wheel for transferring articles from the first conveyor to the first star wheel, and a third star wheel for transferring articles from the first star wheel to the second conveyor.

25. Apparatus according to Claim 24, wherein the first drive is arranged to rotate the second star wheel and the second drive is arranged to rotate the third star wheel.

5 26. Apparatus according to Claim 24 or Claim 25, wherein the first star wheel is smaller than the second and third star wheels.

27. Apparatus according to any of Claims 24 to 26, wherein the first star wheel has a smaller number of article-engaging elements than either
10 the second or the third star wheel.

28. Apparatus according to any of Claims 24 to 27, wherein the third star wheel has a smaller number of article-engaging elements than the
15 second star wheel.